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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,487	09/02/2003	Hyung-Soo Kim	1349.1277	2312

21171 7590 09/27/2005

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EXAMINER	
PHAM, HAI CHI	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/652,487	KIM, HYUNG-SOO
	Examiner	Art Unit
	Hai C. Pham	2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. Applicant is advised that should claim **18** be found allowable, claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Therefore, should the indicated claim be found allowable, the duplicate claim will be rejected under 35 USC § 101.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-6, 8-10, 12-14, 16-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibe (U.S. 6,489,982) in view of Mclaughlin et al. (U.S. 4,758,071).

Ishibe discloses a scanning optical system comprising a collimating lens (2) in which a beam emitted from a light source (semiconductor laser 1) is transformed into at least one of a convergent beam and a parallel beam with respect to an optical axis (col.

5, lines 46-50) and outputted towards a slit (aperture stop 3), the collimating lens having the following characteristics listed in Table 1 (col. 8):

- R1col = 182.212 mm (curvature radius of a first surface of the collimating lens opposing the light source)
- R2col = - 20.831 mm (curvature radius of a second surface of the collimating lens opposing the aperture stop)
- d3 = 6.00 mm (center thickness of the collimating lens)
- fcol = 24.636 mm (focal length from the collimating lens to the light source)

such that the following relationships:

R2col / R1col = 182.212 / (- 20.831) = - 0.114

and d3 / fcol = 6.00 / 24.636 = 0.12

amply satisfy the claimed inequalities.

However, Ishibe is silent regarding the collimator lens being made of one sheet of a spherical surface lens, the collimator lens being made of glass.

Mclaughlin et al. discloses a collimator lens (1) used in an optical reading or writing system, the collimator lens being made out of a sheet of a glass (glass plate 10, Figs. 9C-D) wherein either one surface or each of the two surfaces of the lens is processed into a spherical surface having a predetermined radius of curvature and a predetermined thickness (col. 4, lines 10-25), the spherical shape of the collimator lens is preferred over the aspherical shape because an accurate measurement would be required during the process of the latter.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the collimator lens in the device of Ishibe with a lens made out of one sheet of glass and having both surfaces of spherical shape as taught by Mclaughlin et al. The motivation for doing so would have been to provide a collimator lens easy to produce and whose spherical aberration can be reduced at a low cost as suggested by Mclaughlin et al.

Ishibe further teaches the aperture stop (3) having an elliptic shape with a larger diameter (= 3.08 mm) in the main scanning direction and a shorter diameter (= 1.34 mm) in the sub-scanning direction (Table 1, col. 8, lines 50-52).

Ishibe further teaches the scanning optical system including a cylinder lens (4) in which light beams passing therethrough, are transformed into linear shapes (col. 5, lines 50-58), a rotating polygon mirror (5), an f-theta lens (6), and a photosensitive drum (7).

4. Claims 2, 7, 11, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibe in view of Mclaughlin et al., as applied to claims 1, 5, 9, 13 and 17 above, and further in view of Naiki (U.S. 6,172,787).

Ishibe, as modified by Mclaughlin et al., discloses all the basic limitations of the claimed invention except for the collimator lens having a positive refractive power.

Naiki discloses a laser beam scanning optical apparatus using a collimator lens (2) having a positive refractive power in both main and sub-scanning directions as well as a small diameter and field of view so as to convert the incident diverging laser beam into a parallel beam while inhibiting the spherical aberration (col. 3, lines 38-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the collimator lens of Ishibe device as having a positive refractive power as taught by Naiki. The motivation for doing so would have been to convert the incident diverging laser beam into a parallel beam as well as to as to inhibit the spherical aberration as suggested by Naiki.

Response to Arguments

5. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new grounds of rejection as presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Phan

HAI PHAM
PRIMARY EXAMINER

September 24, 2005